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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,068	06/14/2001	Markus Speidel	P21086	6444

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EXAMINER
MCGUTHRY BANKS, TIMA M

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 11/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Acti n Summary	Application N .	Applicant(s)
	09/880,068	SPEIDEL ET AL.
	Examin r	Art Unit
	Tima M. McGuthry-Banks	1742

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Peri d for R ply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 31 October 2002 have been fully considered but they are not persuasive. Regarding the obviousness rejection, there is nothing in Kudo or Kato that would prevent one from obtaining the claimed composition. According to MPEP § 2144.05 (III), applicant must show criticality or show that the prior art teaches away from the claimed invention. Regarding the former, the applicant does not show reference alloys in Table 2 that are comparable to either Kudo or Kato; therefore, applicants have not shown how the claimed composition is patentably different from the prior art.

Regarding the anticipation rejection, the examiner maintains that it is proper to select the ranges that meet the claimed ranges.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 8-20, 23, 27, 28, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kudo et al (JP 57210941).

Kudo anticipates the invention substantially as claimed. Kudo teaches an alloy with superior stress corrosion cracking resistance with the following composition in percent by weight as shown in the abstract:

Element	Claim 8	Kudo	**Anticipated range of Kudo**
C	0.0015-0.60	0.1-0.25	0.1-0.25
N	0.20-0.90	≤ 0.3	0.2-0.3
Cr	22.0-32.0	15-35	22.0-32.0
Zr, Hf, V, Mo, W, Ti, V, or Ta	5-20.0	$W \leq 24$ $Mo \leq 12$ $Ti \leq 0.5$	W + Mo + Ti = 5 to 20.0
Al	0.03-3.0	≤ 0.5	0.03-0.5
Si	0.4-3.0	≤ 1.0	0.4-1.0
P	Max 0.014	≤ 0.020	Max 0.014
S	Max 0.004	≤ 0.005	Max 0.004
Ni	Min 51	30-60	51-60

Also present are inevitable impurities. A creep-proof nickel alloy is defined in the specification as containing elements of groups 4, 5, and 6 of the periodic table (Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W) (page 4, paragraph 16). Kudo meets this limitation by teaching W, Mo, and Ti, and therefore it would be inherent that the alloy of Kudo is creep-proof. Regarding Claim 9, Kudo teaches 0.16-0.25% C. Regarding Claims 10-12, the ratio of nitrogen to carbon ranges from 1.2-2.0. Regarding Claims 13 and 14, the total concentration of Mo and W, according to the equation in the claims, includes 3.0-10.0%. Regarding Claim 15, Kudo teaches 25-30% Cr. Regarding Claim 16, Kudo teaches 0.5-1.0% Si. Regarding Claim 17, Kudo teaches up to 0.20% Y, which reads on up to 0.15% Y. Regarding Claim 18, Kudo reads on 0.01-0.12% Y. Regarding Claim 19, Kudo teaches up to 2.0% Mn, which reads on up to 0.60% Mn. Regarding Claim 20, Kudo teaches a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding

Claim 23, Kudo reads on up to 0.15% Y, up to 0.6% Mn, and 14.8% Fe. Regarding Claim 27, Kudo reads on up to 0.15% Y and up to 0.6% Mn. Regarding Claim 28, Kudo reads on up to 0.15% Y and 14.8% Fe. Regarding Claim 20, Kudo reads on up to 0.60% Mn and 14.8% Fe.

4. Claims 8-12, 15, 16, 20, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato (JP 56084445).

Kato anticipates the claimed invention. Kato teaches a heat-resistant nickel-based alloy that is excellent in corrosion resistance with the following composition in percent by weight as shown in the abstract:

Element	Claim 8	Kato	**Anticipated range of Kato**
C	0.0015-0.60	0.05-0.25	0.05-0.25
N	0.20-0.90	0.1-0.6	0.2-0.6
Cr	22.0-32.0	20-35	22.0-32.0
Zr, Hf, V, Mo, W, Ti, V, or Ta	5-20.0	W 0.05-2 Mo 0.05-2 V 0.05-3 Nb 0.05-3	W + Mo + V + Nb = 5 to 10.0
Al	0.03-3.0	0.01-0.5	0.03-0.5
Si	0.4-3.0	$\leq$ 1.0	0.4-1.0
P	Max 0.014		0
S	Max 0.004		0
Ni	Min 51	35-65	51-65

Also present are impurity elements. A creep-proof nickel alloy is defined in the specification as containing elements of groups 4, 5, and 6 of the periodic table (Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W) (page 4, paragraph 16). Kato meets this limitation with W, Mo, Nb, and V, and therefore it would be inherent that the alloy of Kato is creep-proof. Regarding Claim 9, Kato reads on 0.16-0.25% C. Regarding Claims 10-12, the ratio of nitrogen to carbon ranges from 2 to 2.4.

Regarding Claim 15, Kato reads on 25-30% Cr. Regarding Claim 16, Kato reads on 0.5-1.0% Si. Regarding Claim 20, Kato reads on up to at least 16% Fe. Regarding Claim 21, Kato teaches 0.01% B.

5. Claims 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kudo.

Kudo anticipates the invention substantially as claimed. Kudo teaches an alloy with superior stress corrosion cracking resistance with the following composition in percent by weight as shown in the abstract:

Element	Claim 33	Kudo	**Anticipated range of Kudo**
C	0.0015-0.60	0.1-0.25	0.1-0.25
N	0.20-0.90	≤ 0.3	0.2-0.3
Cr	22.0-32.0	15-35	22.0-32.0
Zr, Hf, V, Mo, W, Ti, V, or Ta	5-20.0	W ≤ 24 Mo ≤ 12 Ti ≤ 0.5	W + Mo + Ti = 5 to 20.0
Al	0.03-3.0	≤ 0.5	0.03-0.5
Si	0.4-3.0	≤ 1.0	0.4-1.0
P	Max 0.014	≤ 0.020	Max 0.014
S	Max 0.004	≤ 0.005	Max 0.004
Ni or Ni/Co	Min 51	Ni 30-60	51-60
Sc, Y, La group	Max 0.15	Y ≤ 0.20	Max 0.15
Mn	Max 0.60	≤ 2.0	Max 0.60
Fe	Max 14.8	balance	Up to 14.8
B	Max 0.01		0

Also present are inevitable impurities. A creep-proof nickel alloy is defined in the specification as containing elements of groups 4, 5, and 6 of the periodic table (Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W) (page 4, paragraph 16). Kudo meets this limitation by teaching W, Mo, and Ti, and therefore it would be inherent that the alloy of Kudo is creep-proof. Regarding Claim 34, Mo + ½W $\leq$ 12%.

6. Claims 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato.

Kato anticipates the claimed invention. Kato teaches a heat-resistant nickel-based alloy that is excellent in corrosion resistance with the following composition in percent by weight as shown in the abstract:

Element	Claim 8	Kato	**Anticipated range of Kato**
C	0.0015-0.60	0.05-0.25	0.05-0.25
N	0.20-0.90	0.1-0.6	0.2-0.6
Cr	22.0-32.0	20-35	22.0-32.0
Zr, Hf, V, Mo, W, Ti, V, or Ta	5-20.0	W 0.05-2 Mo 0.05-2 V 0.05-3 Nb 0.05-3	W + Mo + V + Nb = 5 to 10.0
Al	0.03-3.0	0.01-0.5	0.03-0.5
Si	0.4-3.0	$\leq$ 1.0	0.4-1.0
P	Max 0.014		0
S	Max 0.004		0
Ni	Min 51	35-65	51-65
Sc, Y, La group	Max 0.15		0
Mn	Max 0.60		0
Fe	Max 14.8	balance	Up to 16
B	Max 0.01	0.01	0.01

Also present are impurity elements. A creep-proof nickel alloy is defined in the specification as containing elements of groups 4, 5, and 6 of the periodic table (Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W) (page 4, paragraph 16). Kato meets this limitation with W, Mo, Nb, and V, and therefore it would be inherent that the alloy of Kato is creep-proof. Regarding Claim 34, Kato teaches Mo + ½ W = 3 to10.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 8-20, 23, 27, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo '941.

Kudo discloses the invention substantially as claimed. However, Kudo discloses broader or overlapping ranges for N, Cr, the sum of W, Mo, and Ti, Al, Si, P, S, and Ni in Claim 8. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.

9. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo '941.

Kudo discloses the invention substantially as claimed. However, Kudo discloses broader or overlapping ranges for N, Cr, the sum of W, Mo, and Ti, Al, Si, P, S, and Ni in Claim 33. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.

10. Claims 8-13, 15, 16, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato '445.

Kato discloses the invention substantially as claimed. However, Kato discloses broader or overlapping ranges for N, Cr, the sum of W, Mo, V and Nb, Al, Si, and Ni in Claim 8. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05. Regarding Claim 13, the total concentration of Mo and W according to the formula in the claim is 0.075-3%. The disclosure of a composition in which the components and ranges meet (i.e., touch) or overlap those being claimed establishes prima facie case of obviousness. *Titanium Metals Corp.* v. *Banner*, 227 USPQ 773.

11. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato '445.

Kato discloses the invention substantially as claimed. However, Kato discloses broader or overlapping ranges for N, Cr, the sum of W, Mo, V and Nb, Al, Si, and Ni in Claim 33. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05. Regarding Claim 34, the total concentration of Mo and W according to the formula in the claim is 0.075-3%. The disclosure of a composition in which the components and ranges meet (i.e., touch) or

overlap those being claimed establishes prima facie case of obviousness. *Titanium Metals Corp.* v. *Banner*, 227 USPQ 773.

12. Claims 21, 22, 24-26, 29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo '941 as applied to Claims 8-20, 23, 27, 28, and 30 above, and further in view of Smith et al (US 6,287,398 B1).

Kudo discloses the invention substantially as claimed. However, Kudo does not teach that the alloy contains boron as in Claims 21, 22, 24-26, 29, 31, and 32. Smith teaches nickel-chromium alloys having high strength and oxidation resistance at high temperatures (column 1, lines 5 and 6). The alloy also contains up to 0.01% B (column 4, line 23). It would have been obvious to one with ordinary skill in the art at the time the invention was made to add B to the alloy of Kudo, since Smith teaches that B is useful as a deoxidizer and can be utilized to advantage for hot workability at higher levels (column 4, lines 23 and 24). Specifically regarding Claim 22, Kudo teaches up to 0.20% Y, which reads on up to 0.15% Y. Regarding Kudo teaches Y, up to 2.0% Mn, and a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding Claim 24, Kudo teaches Y and up to 2.0% Mn. Regarding Claim 25, Kudo teaches Y and a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding Claim 26, Kudo teaches up to 2.0% Mn and a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding Claim 29, Kudo teaches up to 0.20% Y, which reads on up to 0.15% Y. Regarding Claim 31, Kudo teaches up to 2.0% Mn. Regarding Claim 32, Kudo teaches a balance of iron (about 12-22%), which reads on 14.8% Fe.

13. Claims 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudo as applied to Claims 33 and 34 above, and further in view of Smith.

Kudo discloses the invention substantially as claimed. However, Kudo does not teach that the alloy contains boron as in Claims 35-38. Smith teaches nickel-chromium alloys having high strength and oxidation resistance at high temperatures (column 1, lines 5 and 6). The alloy also contains up to 0.01% B (column 4, line 23). It would have been obvious to one with ordinary skill in the art at the time the invention was made to add B to the alloy of Kudo, since Smith teaches that B is useful as a deoxidizer and can be utilized to advantage for hot workability at higher levels (column 4, lines 23 and 24). Specifically regarding Claim 35, Kudo teaches up to 0.20% Y, which reads on up to 0.15% Y, up to 2.0% Mn, and a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding Claim 36, Kudo teaches Y and up to 2.0% Mn. Regarding Claim 37, Kudo teaches up to 2.0% Mn and a balance of iron (about 12-22%), which reads on 14.8% Fe. Regarding Claim 38, Kudo teaches a balance of iron (about 12-22%), which reads on 14.8% Fe.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks, whose telephone number is 703-308-1917. The examiner can normally be reached on 9:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King, can be reached on 703-308-1146. The fax numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is 703-308-0651.

Tima M. McGuthry-Banks
Examiner
Art Unit 1742

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

November 12, 2002